

**ABSTRACT**

The invention has an object of providing a process for producing an ethylene/α-olefin/non-conjugated polyene copolymer with good polymerization activity and high 5 conversion of non-conjugated polyene.

The invention achieves the object by providing a process for producing an ethylene/α-olefin/non-conjugated polyene copolymer that comprises copolymerizing ethylene, an α-olefin and a non-conjugated polyene in a hydrocarbon solvent with use 10 of a transition metal compound catalyst, and removing the unreacted monomers and the hydrocarbon solvent from the copolymer solution without removing the catalyst residue, wherein the copolymerization is carried out at a polymerization temperature of 100°C or above and a 15 polymerization pressure of 2.7 MPa or above in a manner such that the non-conjugated polyene concentration in the polymerization solution is less than the maximum non-conjugated polyene concentration C<sub>max</sub> (mol/L) indicated below:

20 C<sub>max</sub> = 0.050 (mol/L) when the copolymer has an iodine value (IV) of 9.0 g/100 g to less than 17.0 g/100 g; or C<sub>max</sub> = 0.104 (mol/L) when the copolymer has an iodine value (IV) of 17.0 g/100 g or above.

(12)特許協力条約に基づいて公開された国際出願

(19)世界知的所有権機関  
国際事務局(43)国際公開日  
2004年8月5日 (05.08.2004)

PCT

(10)国際公開番号  
WO 2004/065435 A1

(51)国際特許分類7: C08F 210/18, 4/64 県袖ヶ浦市長浦580-32 三井化学株式会社内 Chiba (JP).

(21)国際出願番号: PCT/JP2004/000586 (74)代理人: 鈴木俊一郎 (SUZUKI, Shunichiro); 〒1410031 東京都品川区西五反田七丁目13番6号 五反田山崎ビル6階 鈴木国際特許事務所 Tokyo (JP).

(22)国際出願日: 2004年1月23日 (23.01.2004) (81)指定国(表示のない限り、全ての種類の国内保護が可能): AE, AG, AI, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UY, VC, VN, YU, ZA, ZM, ZW.

(25)国際出願の言語: 日本語 (84)指定国(表示のない限り、全ての種類の広域保護が可能): ARIPO (BW, GII, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), ユーラシア (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), ヨーロッパ (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(26)国際公開の言語: 日本語

(30)優先権データ: 特願2003-014524 2003年1月23日 (23.01.2003) JP

(71)出願人(米国を除く全ての指定国について): 三井化学株式会社 (MITSUI CHEMICALS, INC.) [JP/JP]; 〒1057117 東京都港区東新橋一丁目5番2号 Tokyo (JP).

(72)発明者; および  
(75)発明者/出願人(米国についてのみ): 松浦貞彦 (MATSUURA, Sadahiko) [JP/JP]; 〒2990265 千葉県袖ヶ浦市長浦580-32 三井化学株式会社内 Chiba (JP). 村上英達 (MURAKAMI, Hidetatsu) [JP/JP]; 〒2990265 千葉県袖ヶ浦市長浦580-32 三井化学株式会社内 Chiba (JP). 羽佐田恭弘 (HASADA, Yasuhiro) [JP/JP]; 〒2990265 千葉県袖ヶ浦市長浦580-32 三井化学株式会社内 Chiba (JP). 斎藤純治 (SAITO, Junji) [JP/JP]; 〒2990265 千葉県袖ヶ浦市長浦580-32 三井化学株式会社内 Chiba (JP). 藤田照典 (FUJITA, Terunori) [JP/JP]; 〒2990265 千葉県袖ヶ浦市長浦580-32 三井化学株式会社内 Chiba (JP). 松居成和 (MATSUI, Shigekazu) [JP/JP]; 〒2990265 千葉

添付公開書類:  
— 国際調査報告書

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイドノート」を参照。

(54) Title: PROCESS FOR PRODUCING ETHYLENE/α-OLEFIN/UNCONJUGATED POLYENE COPOLYMER AND ETHYLENE/α-OLEFIN/UNCONJUGATED POLYENE COPOLYMER

(54)発明の名称: エチレン・α-オレフィン・非共役ポリエン共重合体の製造方法およびエチレン・α-オレフィン・非共役ポリエン共重合体

(57) Abstract: A process for producing an ethylene/α-olefin/unconjugated polyene copolymer, which comprises copolymerizing ethylene, an α-olefin, and an unconjugated polyene in a hydrocarbon solvent with the aid of a transition metal compound catalyst to obtain a solution containing a copolymer and removing the unreacted monomers and the hydrocarbon solvent from the solution without removing the residual catalyst, characterized in that the monomers are copolymerized under the conditions of a polymerization temperature of 100°C or higher and a polymerization pressure of 2.7 MPa or higher while regulating the concentration of the unconjugated polyene in the polymerization mixture solution to a value less than the maximum unconjugated-polyene concentration Cmax (mol/L) shown below: Cmax = 0.050 (mol/L) when the iodine value (IV) of the copolymer is 9.0 to less than 17.0 g/100g, and Cmax = 0.104 (mol/L) when the iodine value (IV) of the copolymer is not lower than 17.0 g/100g.

WO 2004/065435 A1

(続葉有)